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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,146	03/28/2001	Shlomo Hoffmann	Hoffmann 3	3969
30593	7590	04/21/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			HA, DAC V	
P.O. BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2634	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/820,146	HOFFMANN, SHLOMO	
	Examiner	Art Unit	
	Dac V. Ha	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the RESPONSE filed on 11/16/04.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-7, 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghanadan et al. (US 6,259,319) (hereinafter Ghanadan) in view of Carney et al. (US 5,937,011) (hereinafter Carney).

Regarding claim 1, Ghanadan discloses the claimed subject matter in claim 1 including "sampling the output of a" "amplifier radio frequency signal; and detecting the sampled signal" "and quantizing and nulling the intermodulation distortion" in Figure 2, element 52; Figure 4; col. 1, line 54 to col. 3, line 48; col. 6, line 5 to col. 7, line 16. Ghanadan differs from the claimed invention in that it does not disclose "a multiple carrier linear amplifier". However, reducing intermodulation for amplifier in multi-carrier environment is not new and would have been perceived by one skilled in the art as intended use (Carney, col. 1, lines 39-41; col. 2, lines 52-54). Therefore, since multi-carrier is common within cellular technology, which is very popular, it would have been obvious to one skilled in the art to utilize method multi-carrier signaling of Carney into Ghanadan to maximize the utilization of Ghanadan system.

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Regarding claims 2-7, these claimed subject matter are rather design specific, thus would have been obvious to one skilled in the art.

Regarding claim 23, see claim 1 above.

4. **Claims 8-22, 24, 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghanada in view of Carney as applied to claim 23 above, and further in view of Myer (US 6,157,254).

Regarding claim 24, the combination of Ghanada and Carney discloses all the claimed subject matter in claim 24, as stated above, except for the claimed subject matter "wherein said detector and digitizing circuit further comprises a sample and hold circuit". Myer, in the same field of endeavor, discloses the use of "a sample and hold circuit" is optional (col. 2, lines 36-37).

Regarding claim 25, based on the above combination, it would have been desired to provide oscillator signal in Figure 2, element 52 of Ghanada at the appropriate frequencies of the subjective signal band for mixing. Thus, the claimed subject matter "a synthesizer circuit for generating a local oscillator signal having predetermined frequency increments $f_0 \dots f_i$ situated within one of predetermined sub-bands and a mixer for mixing the sampled radio frequency signal with the local oscillator signal and targeting the centers of multiple carriers" would have been obvious to one skilled in the art.

Regarding claims 8, 16, see claim 25 above.

Regarding claims 9-15, 17-22, these claimed subject matter are rather design specific, thus would have been obvious to one skilled in the art.

Response to Arguments

5. Applicant's arguments filed on 11/16/04 have been fully considered but they are not persuasive.

Even though Ghanadan does not disclose "a multiple carrier linear amplifier" in the exact term as the claimed invention, Ghanadan does disclose the system is used for at least one carrier (col. 1, lined 58) and can be applied to multiple carrier system (col. 5, lines 12-24. Therefore, the system of Ghanadan can be applied to a multi-carrier environment (i.e. Carney) for maximizing its utilization.

In such multi-carrier environment, it is within the knowledge of one skilled in the art to understand the use of "frequency increment". That is, RF signals can be modulated according to any number of modulation formats, including for example, TDMA, GSM, CDMA, WCDMA, QAM and OFDM, each of which have varying bandwidths. Thus, the bandwidth of signal, depending on its modulation format, can vary from, e.g. 30kHz to 3.84 MHz. It is within the scope of one skilled in the art to tune (via a controlled oscillator) the signals to a desired bandwidth or scan the whole frequency band for the multi-carrier signals. Further, down-converting the RF signals to IF signals is also within the knowledge of one skilled in the art as conventional. And both, Ghanadan and Carney disclose "quantizing" in Fig. 4 of Ghanadan and Fig. 1 of Carney.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-273-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Dac V. Ha", with a long horizontal line extending from the end of the signature.

Dac V. Ha
Examiner
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